

Application No.: 09/732,299
Amendment and Response dated July 6, 2004
Reply to final Office Action of February 2, 2004
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Remarks/Arguments:

Introduction

Claims 1-20 and 31-36 are pending. Claims 21-30 have been cancelled without prejudice to the filing of a divisional or continuation application. Claims 34-36 have been added.

Claim 1 has been amended to further describe that the flow-directing outlet baffle as having an inlet extending across the container adjacent to the heavy waste removal area and as having a height sufficient to accelerate flow through the inlet to suck the heavy waste away. Support for this amendment may be found in the Specification at page 9, lines 17-22; at page 15, lines 5-11, and at originally filed claim 8.

Claim 34 has been added to further describe that the inlet of the flow-directing baffle has a width greater in size than the wastewater outlet. Support for the claim may be found in the Specification at page 15, lines 6-14. Claim 35 has been added to further describe that the flow-directing outlet baffle extends substantially across the width of said container. Support for the claim may be found in the Specification at page 15, lines 7-8. Claim 36 has been added to further describe the height of the inlet of the flow-directing outlet baffle. Support for the claim may be found in the Specification at page 15, lines 8-9.

Claim 20 has been amended to further describe that the air entraining means comprise the wastewater stream director. Support for this amendment may be found in the Specification at page 15, line 27, to page 10, line 5.

The Specification in the paragraph beginning at page 3, line 7, has been amended to remove alleged new matter as stated by the Examiner.

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No new matter is introduced with these amendments. Accordingly, entry of these amendments is respectfully requested.

Section 112 Rejections

Claims 1-20 are rejected under 35 U.S.C. §112, first paragraph. Applicants respectfully traverse.

The Specification has been amended to remove alleged new matter as noted in paragraph 1 of the action. Claim 1 has also been amended accordingly.

Reconsideration and withdrawal of the rejections of claims 1-20 under 35 U.S.C. §112, first paragraph, are respectfully requested.

Section 102 Rejections

Claims 1-8, 10, 11, 14/2, 14/11, 15, 18/1, 18/2, 19 and 31-33 are rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Marsh (U.S. 2,076,380). Claims 1-5, 10, 11, 14/2, 14/11, 15 and 33 are rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Hirshstein (U.S. 2,140,582). Claim 20 is rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by any one of Munroe (2,242,139), Rubin (3,313,795), Yeh (U.S. 5,538,631) or Burke (U.S. 4,492,636). Applicants respectfully traverse.

Marsh discloses an "oil interceptor". In the oil interceptor of Marsh, a wastewater stream enters from the inlet 20 and is directed downward by a baffle 21. The inlet baffle 21, including its outlet portion 23, is proximal to the inlet 20. (Marsh, Figs. 2 and 4). The stream is then separated into two substreams by a deflector bar 29 (Marsh, page 2, col. 1, line 71, to

col. 2, line 5). The heavy, solid waste proceeds in the lower portion of the wastewater stream along the bottom of the tank. The bottom of the tank has corrugations which create turbulent flow, causing the solid particles in the wastewater stream to bounce, thus releasing, and impelling upwardly, lighter waste. The lighter waste rises to the surface of the water in the separator. Heavier waste that is suspended in the liquid is drawn to the outlet 42 by suction (Marsh, page 3, col. 1, line 64, to col. 2, line 34). A vertical wall 38 separates the outlet 42 and the discharge column 39 from the body of the oil interceptor. (Marsh, page 2, col. 2, lines 10-15). Further, the vertical wall 38 is distant from the inlet baffle 21.

Hirshstein discloses a water clarifying apparatus for reclaiming oil and grease. The apparatus includes an inlet pipe 5 with a baffle 12 proximally opposite the inlet pipe 5. The baffle 12 directs the wastewater stream downward into a central channel 20. As the wastewater stream travels through the channel 20, light waste separates upward to the surface of the water in the apparatus. On either side of the channel 20, there is a series of steps which create turbulent flow, and upon which solid matter can settle. If there is a moderate amount of suspended substances, those substances will be carried to the outlet through the channel 20. If there is a larger amount, then the suspended substances will settle on the steps, and will work their way into the stream at a later time to be carried out through the outlet 6. Outlet 6 and the vertical passageway 7 are sized approximately to the size of the discharge 8. (Hirshstein, Figs. 1 and 2). Outlet 6 is formed in the bottom of the end wall 3 of the apparatus.

In contrast, the invention as presently defined by amended independent claim 1 is directed to a wastewater separator for separating waste from a mixed wastewater stream before the mixed wastewater stream is directed into a sewer system, where the mixed wastewater stream includes one or more of heavy waste, light waste and water. The wastewater separator comprises a separation container; a wastewater inlet to said separation container; and a wastewater outlet from said separation container; said separation container comprising a wastewater stream director within said container, said wastewater stream director being sized,

shaped and positioned relative to said wastewater inlet to direct said wastewater stream along a preferred flow path to permit said light waste to separate from said wastewater stream in a first direction to a collection area and to permit said heavy waste to separate from said wastewater stream in a second direction towards a heavy waste removal area; and a flow-directing outlet baffle within said container for directing said wastewater stream to said wastewater outlet from said heavy waste removal area to remove said heavy waste from said separation container; said flow-directing outlet baffle having an inlet extending across said container adjacent to said heavy waste removal area and having a height sufficient to accelerate flow through said inlet to suck said heavy waste away so as to cause the heavy waste to be carried out of the separation container with said wastewater stream.

Applicants respectfully submit that amended independent claim 1 is not anticipated by Marsh or Hirshstein for the following reasons.

Amended claim 1 requires, *inter alia*, that the flow-directing outlet baffle has an inlet extending across the container adjacent to the heavy waste removal area and having a height sufficient to accelerate flow through the inlet to suck heavy waste away so as to cause the heavy waste to be carried out of the separation container with the wastewater stream.

In Marsh, as described above, the heavy waste is carried in the wastewater stream along the corrugated bottom of the separation tank until it reaches the outlet 42. The outlet 42 is defined by the wall 38 which forms "the rear end of the basin and... [separates] the body of the basin [from] a liquid discharge column." (Marsh, page 2, col. 2, lines 11-13). Thus, Marsh fails to disclose, *inter alia*, a flow-directing outlet baffle, more specifically a flow-directing baffle extending across the container. As there is no disclosure of a flow directing outlet baffle, there is also no disclosure of an inlet on the outlet baffle having a height sufficient to suck heavy waste away. Indeed, due to boundary condition effects heavy waste will settle and accumulate in between the ribs and in the bottom of the tank. Marsh teaches that this can be

overcome by providing a clean out plug 41, to give access to remove accumulated solids. The clean out plug will also encourage the settling and accumulation of heavy solids. The undesirable accumulation of solids is avoided by the applicant's invention, due to the inlet on the outlet baffle.

Thus, Marsh fails to disclose each and every limitation of independent claim 1. Reconsideration and withdrawal of the rejection of claim 1, and all claims dependent therefrom, are respectfully requested because Marsh fails to disclose, *inter alia*, the flow-directing outlet baffle as recited in claim 1.

Hirshstein also fails to disclose the recitations of claim 1. Hirshstein fails to disclose a flow-directing outlet baffle. Assuming, *arguendo*, that the end wall 3 above discharge opening 6 of Hirshstein may be construed as a baffle and not as an end wall, Hirshstein still fails to disclose the present invention because the end wall 3 does not form a baffle at the discharge opening 6 which extends across the container. Again, due to boundary condition effects, solids will tend to settle and accumulate in the corners, which is undesirable.

Thus, Hirshstein fails to disclose each and every limitation of independent claim 1. Reconsideration and withdrawal of the rejection of claim 1, and all claims dependent therefrom, are respectfully requested.

The invention as presently defined by amended independent claim 20 is directed to a wastewater separator for separating light waste from a mixed wastewater stream. The wastewater separator comprises a separation container having an inlet end and an outlet end; a wastewater inlet to said separation container; a wastewater outlet from said separation container; and air entraining means associated with said wastewater inlet to entrain air into said wastewater stream; said separation container comprising: a wastewater stream director in the container, said wastewater stream director being sized, shaped and positioned to direct the

wastewater stream along a preferred flow path which is generally diagonal across said container to facilitate separation of said light waste; and a flow-directing outlet baffle in said container for directing said wastewater stream from a downstream end of said preferred flow path to said wastewater outlet, wherein said air entrapping means comprise said wastewater stream director.

The Examiner rejected claim 20 as being allegedly being anticipated by Munroe, Rubin, Yeh or Burke. As discussed below, however, these references fail to disclose the invention as presently defined by claim 20 which includes, *inter alia*, an air entrapping means which comprise a wastewater stream director.

Munroe is directed to a floc removing tank 29. A pair of sprays 30 introduces water into the tank 29 via pump 31. Air is introduced into the water being pumped *via* an open valved pipe 36 at the suction of the pump 31.

Rubin is directed to a basin 1 or 2 having air bubbles 14 or 15 upwardly projecting through wastewater. The air bubbles 14 or 15 are delivered *via* nozzles 12 or 13 which are fed with air/water dispersion.

Yeh is directed to a dissolved air flotation system 10 for treating a liquid L_1 . Air injector 34 or compressed air 26 is used to introduce air into air-enriched streams, L_2 and L_3 . The air-enriched streams are introduced to the system 10 *via* a chamber 16 or spaced apart nozzles in a distribution conduit 43 at the bottom of the system 10.

Burke is directed to a process for removing solid matter from metal working fluids. Pressurized air-enriched fluid is combined with the contaminated fluid and introduced into the tank 1.

Thus, Munroe, Rubin, Yeh and Burke provide air into their systems *via* pressurized air-enriched liquid streams. The references, however, fails to disclose, *inter alia*, an air entrapping means that comprise a wastewater stream director as set forth in claim 20.

Therefore, reconsideration and withdrawal of the rejection of claim 20 is respectfully requested.

Section 103 Rejections

Claims 9, 12, 13, 14/9, 16, 17 and 18/17 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Marsh (U.S. 2,076,380) in view of McDermott (U.S. 1,121,270). Applicants respectfully traverse.

McDermott discloses a separator, which is also described at column 1 line 12 as a "settling tank." One purpose of the settling tank is to "retain sand, dirt, etc., and to keep it out of the sewer." Heavy waste settles to the bottom 14 of the settling tank, and does not exit the settling tank. (McDermott, page 2 lines 105-124). While the action cited McDermott for its teachings of handles for removal of certain elements to clean the separator, McDermott fails to cure the deficiencies of Marsh.

For example, Marsh fails to teach or suggest, *inter alia*, a flow-directing outlet baffle having an inlet extending across its container adjacent to a heavy waste removal area and having a height sufficient to accelerate flow through said inlet to suck heavy waste away. McDermott fails to cure such deficiencies of Marsh.

Therefore, reconsideration and withdrawal of the rejection of claims 9, 12, 13, 14/9, 16, 17 and 18/17 are therefore respectfully requested.

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Therefore, it is respectfully submitted that independent claims 1 and 20, and all claims dependent therefrom are patentably distinct over the art of record. Reconsideration and withdrawal of all claim rejections are respectfully requested.

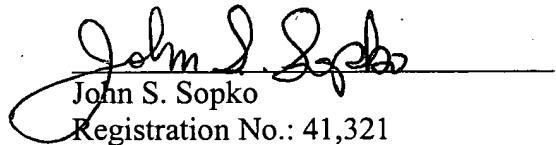
Summary

Therefore, Applicants respectfully submit that independent claims 1 and 20, and all claims dependent therefrom, are patentably distinct. This application is believed to be in condition for allowance. Favorable action thereon is therefore respectfully solicited.

Should the Examiner have any questions or comments concerning the above, the Examiner is respectfully invited to contact the undersigned attorney at the telephone number given below.

The Commissioner is hereby authorized to charge payment of any additional fees associated with this communication, or credit any overpayment, to Deposit Account No. 08-2461.

Respectfully submitted,


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